Unit 5: Induced Pluripotent Stem Cells

By Melanie Prasol

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Suggested time frame:Four to ten class periods

Course level: AP/IB Biology, biotechnology classes, college level Biology, Anatomy/Physiology

Inquiry teaching: Read how to modify the curriculum for inquiry teaching

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- Download Unit 5 Teacher Background Information [pdf]
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Brief Outline of Unit 5

View Detailed Unit 5 Lessons Outline

I. INVITATION

A. Making pluripotent cells from adult stem cells

1. View NoveScience Now documentary on induced pluripotent stem (iPS) cells with question sheet

B. Discussion of documentary

C. Review basic stem cell biology

II. Exploration

A. Lecture - Introduction to iPS technology

B. Discussion of Yamanaka iPS research paper summary

C. Jigsaw study of current iPS research summaries

1. The promises and risks of iPS cells

D. Review of iPS cell technology

1. View unit 5 PowerPoint presentation
2. Read and discuss iPS cell questions and answers

III. Application

A. In-class groups list advantages and disadvantages of human embryonic stem cells compared to iPS cells

B. Ethical Review Board simulation activity

IV. Assessment

A. Summarize understanding of iPS cell technology through written response to questions

1. Describe ideal iPS cell treatment of patient with Thalassemia

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